MONTANA FISH, WILDLIFE & PARKS

HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION

Species: Bobcat
Region: Trapping District 4
Hunting District:
Year: 2013

1. **Describe the proposed season / quotas changes and provide a summary of prior history (i.e., prior history of permits, season types, etc.).**

Decrease the existing Trapping District 4 (TD 4) bobcat quota from 300 animals to 200 animals for the 2013-14 season.

A TD 4 bobcat quota of 150 bobcats was established for the first time beginning with the 1983–84 season. The quota was raised to 175 beginning with the 1987-88 season, and further raised to 200 beginning with the 2002-03 season. The TD 4 bobcat quota remained at 200 until the 2004-05 season when it was raised to 300 and has remained there until the present. Prior to the initial quota of 150, trappers were generally limited to taking a maximum of 2 bobcats each. The per-trapper limit was changed to 3 prior to the 1983-84 season, and raised again to 6 prior to the 1991-92 season. The per trapper limit was raised to 7 beginning with the 1994-95 season. The per-trapper limit was abandoned beginning with the 1998-99 season. The season length was extended in 1998 from 74 to 90 days beginning with the 1998-99 season.

2. **Why is the proposed change necessary?**

The purpose of the TD 4 quota is to provide a sustainable level of bobcat harvest while preventing over-harvest. Harvest data indicate reduced bobcat abundance recently. Favorable trapping conditions existed for the 2012-13 season. Sufficient effort and incentive existed to reach the quota if bobcats were adequately abundant. Recent harvest information along with the favorable trapping conditions indicates the bobcat population in TD 4 cannot sustain existing harvest levels without negatively impacting the population. Therefore, a quota reduction is warranted to allow the bobcat population to recover. A quota reduction from 300 to 200 bobcats will have limited impact on trapper opportunity yet provide needed security allowing the population. A lesser quota reduction may not provide sufficient margin to allow the population to return to previous levels. Population indices regarding the current population trends and response are explained below.

3. **What is the current population's status in relation to the management objectives? (i.e., state management objectives from management plan if applicable; provide current and prior years of population survey, harvest, or other pertinent information).**

The management objective for TD6 bobcats is to maintain healthy populations while allowing sustained harvest. Currently, there are no direct methods to determine bobcat population size and health. Rather, the health of the population is assessed from trend information based on harvest reports and harvest records. Subsequently, harvest levels are managed by trend information. A variety of parameters are used to indicate the health of the population. Important parameters include: recruitment (juveniles/adult female), age at time of harvest (median), sex ratio of the harvest, and number of successful trappers. No one parameter is conclusive; therefore, these and other parameters must be considered. An important factor other than harvest to be considered is climatic conditions.

Age data is only available through the 2011-12 season. Analysis of age data therefore does not apply to the most recent season. However, past trends and current age analysis provides some insights to the age structure of the population. For the past several seasons, the median ages of males and females has remained constant at 2.5. It is a concern that median ages increase as there are likely fewer younger

bobcats available for harvest. When the population declines or is over exploited, median ages are likely to increase. When population increases, median ages tend to decrease as more juveniles are available for harvest. As median ages have not decreased for the past several seasons, it is reasonable that the TD 4 bobcat population have not experienced significant increases.

Table 1. Median age of aged bobcats harvested in TD 4, 1994-95 to 2011-12

YEAR	MALE MEDIAN AGE	FEMALE MEDIAN AGE
1994-95	3.5	2.5
1995-96	2.5	2.5
1996-97	2.5	2.5
1997-98	3.5	3.5
1998-99	2.5	2.5
1999-00	3.5	2.5
2000-01	2.5	1.5
2001-02	2.5	1.5
2002-03	2.5	2.5
2003-04	2.5	1.5
2004-05	1.5	1.5
2005-06	2.5	2.5
2006-07	2.5	1.5
2007-08	2.5	1.5
2008-09	2.5	2.5
2009-10	2.5	2.5
2010-11	2.5	2.5
2011-12	2.5	2.5

Age analysis does allow separation of juveniles from adults for the most recent trapping season thus permitting a current analysis of recruitment (Table 2). The number of juveniles per adult female, a measure of recruitment, was considerably below the long term average for two of the past 4 seasons, above the long term average last season and slightly below last season indicating below average recruitment 2 of the last 4 years. While no standard has been determined, it appears that when the number of juveniles per adult female falls below the long term average (0.62), production is likely decreasing and the population is experiencing reduced abundance given median ages have not changed.

The adult female percentage of the harvest was above the long term average from the 2008-09 through the most recent season, eclipsing parity for the most recent season for bobcats submitted to the Wildlife Lab for analysis (Table 2). Of the total harvest (Figure 1), the overall female harvest has been greater than 50% for the past two seasons. The male percentage of the harvest should be greater than female percentage due to larger male home ranges, greater amount of travel by males, increased likelihood of a male encountering a trap and subsequently being harvested. When the female percentage of the harvest is greater than the long term average, the reproductive segment of the population is experiencing overharvest.

The bobcat quota was reached prior to the end of the regular season only once in the past 4 seasons (Figure 2). Season length does provide some index of bobcat abundance when sufficient trapper effort occurs, especially when favorable trapping conditions exist as was present the 2012-13 season. Coupled with sufficient interest and effort, examined below, season length for the 2012-13 season also indicates bobcat populations are not abundant.

Table 2. Age structure of bobcats trapped* in Region 4, 1994-95 to 2011 -12

YEAR	#AD. Males	# AD. Fem.	% AD. Fem.	# Of Juv.	JUV/AD Fem.	% Juv.	Total Adults Aged	# Yrlgs.	% Yrlgs.
1993-94	44	39	47%	36	0.92	30%	83	11	9%
1994-95	41	35	46%	28	0.92	18%	76	10	13%
1995-96	55	29	35%	9	0.26	9%	84	33	39%
1996-97	63	44	41%	33	0.78	20%	107	22	21%
1997-98	46	32	41%	11	0.32	7%	78	17	22%
1998-99	53	43	45%	28	0.61	21%	96	13	14%
1999-00	78	57	42%	37	0.71	20%	135	35	26%
2000-01	74	49	40%	39	0.80	23%	123	41	33%
2001-02	73	56	43%	35	0.61	20%	129	39	30%
2002-03	95	68	42%	32	0.47	16%	163	37	23%
2003-04	96	70	42%	42	0.60	20%	166	46	28%
2004-05	135	101	43%	62	0.61	21%	236	102	43%
2005-06	118	92	44%	65	0.71	23%	210	55	26%
2006-07	158	94	37%	59	0.60	19%	252	87	35%
2007-08	144	99	41%	62	0.63	20%	243	98	40%
2008-09	125	102	45%	42	0.41	14%	227	50	22%
2009-10	87	69	44%	31	0.45	17%	156	34	22%
2010-11	75	64	46%	49	0.76	26%	139	33	15%
2011-12	96	100	51%	60	0.60	23%	196	NA	NA
AVG ('93-'11)			43%		0.62	20%			28%

*Data from bobcats submitted to Wildlife Lab for analysis only.

Figure . Percent female and male bobcat harvest for TD 4, 1988-2012.

Figure . TD 4 bobcat season length, trapper quota and bobcat harvest, 1992 – 2012.

Current metrics of trapper effort (number of trap days) are not available until later this year. However, the number of successful bobcat trappers provides a reasonable index of effort. TD 4 has a long term average of 103 succesful bobcat trappers per season. As indicated in Figure 3, the number of successful bobcat trappers for the 2012-13 season was significantly above the long term average, likely due to favorable trapping conditions. For the 2012 -13 season, the number of successful trappers was above the long term average of 103 suggesting if the bobcat population were sufficiently abundant, the quota would have been reached.

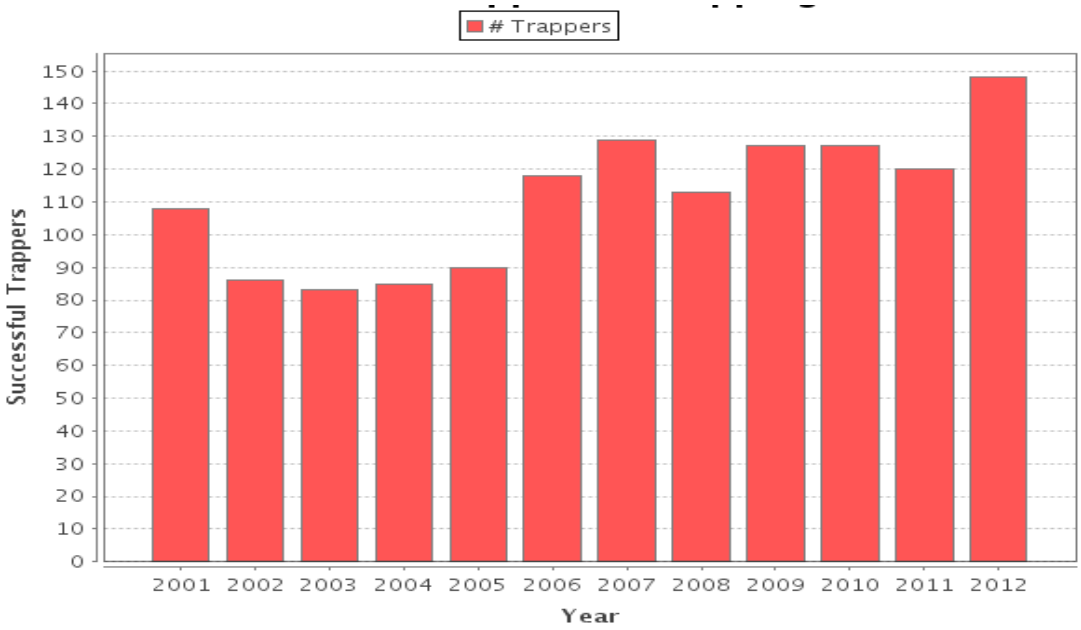

Figure . Number of successful bobcat trappers in TD 4, 2001 - 2012

The above bobcat population parameters in TD 4 are indicating reduced bobcat abundance. Below long-term recruitment for 3 of the past 4 years, above the long term average adult females harvest for the past 4 seasons, greater than 50% of the total harvest was female for the past two seasons, full season length despite adequate effort for 3 of the past 4 years, full season length for the 2012-2013 season despite sufficient interest, and favorable trapping conditions indicate a decrease of the quota is warranted.

4. **Provide information related to any weather/habitat factors that have relevance to this change (i.e., habitat security, hunter access, vegetation surveys, weather index, snow conditions, temperature / precipitation information).**

The declines in harvest in the 2009-10 and 2010-11 seasons were likely the result of unfavorable winter weather. Unfavorable winter conditions are known to decrease juvenile survival, reduce prey abundance and availability, and decrease production. TD 4 experienced a mild winter for the 2012-13 season yet failed to reach the quota. While the mild winter increased recruitment, data indicate bobcat abundance has not yet recovered to previous levels.

5. **Briefly describe the contacts you have made with individual sportsmen or landowners, public groups or organizations regarding this proposal and indicate their comments (both pro and con).**

The proposal to potentially decrease the current TD 4 bobcat quota was discussed at the recent Trapping District 4 Montana Trappers Association annual meeting. At that time, a reduction of 50 to 100 bobcats was briefly discussed. It was noted at the meeting that age data was not yet available and a biologist discussion would take place regarding a potential quota reduction. Trappers present, including the TD 4 Director, preferred the quota remain unchanged based on their observations of bobcat sign. It was explained that bobcat sign is a poor indicator of bobcat abundance. A bobcat quota reduction from 300 to 200 was favored by a local trapper and landowner.

Submitted by: ___Ryan L. Rauscher_____
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Disapproved / Modified by: _____

Name / Date

Reason for Modification: